

Amendments to the Specification

- 1) Please delete the text found at page 1, lines 1 – 5.
- 2) Please insert the following title at page 1, line 1:

**Brazed copper heat exchangers and process of
manufacturing them by welding**
- 3) Please insert the following paragraph at page 1, line 3:

This application claims the benefit of priority under 35 U.S.C. § 119 (a) and
(b) to French Application No. 0209658, filed July 30, 2003, the entire contents of
which are incorporated herein by reference.
- 4) Please insert the following subtitle at page 1, below the above-referenced
paragraph:

Background
- 5) Please replace the paragraph at page 2, line 15, with the following:

This may then result in ~~vapeurization~~ vaporization of the phosphorus,
deriving a risk of porosity as the temperature of the weld pool is much higher than
the brazing temperature, and above all embrittlement of the welded joint thus
produced using conventional filler products, since the solubility of phosphorus in
the alloys normally used for welding is very low. This results, during solidification
of the joint, in substantial phosphorus segregation and, as a consequence, the
formation of brittle zones very rich in phosphorus.
- 6) Please insert the following subtitle and text at page 2, line 31:

Summary

The invention relates to a process for welding brazed copper heat
exchangers, to a process for manufacturing heat exchangers by welding, to the
exchangers obtained by such a process and to their use for the separation of
gases, especially air.
- 7) Please insert the following subtitle and text at page 3, line 21:

Brief Description of the Drawings

For a further understanding of the nature and objects for the present invention, reference should be made to the following detailed description, taken in conjunction with the accompanying drawings, in which like elements are given the same or analogous reference numbers and wherein:

- Figure 1 illustrates one embodiment, according to the current invention, of a weld created on a brazed matrix; and
- Figure 2 illustrates one embodiment, according to the current invention, of a weld between a brazed heat exchanger and a metal workpiece.

- 8) Please insert the following subtitle and text after the above-inserted paragraphs:

Description of Preferred Embodiments

The invention relates to a process for welding brazed copper heat exchangers, to a process for manufacturing heat exchangers by welding, to the exchangers obtained by such a process and to their use for the separation of gases, especially air.

- 9) Please replace the paragraph at page 8, line 5, with the following:

To avoid all these drawbacks, trials of implementing the invention have shown that it is possible to dispense with preheating the zone to be welded if the MIG torch is preceded, a few ~~centimetres~~ centimeters ahead, by an electric arc, for example ~~an~~ a deconfined plasma or TIG arc, or several arcs, placed transversely or longitudinally with respect to the welding direction. This provides very local but effective preheating, since the heat thus provided by the preheating arc(s) does not have time to diffuse significantly into the mass of the exchanger, because of the short time that elapses between the preheating pass with the plasma or TIG arc(s) and the pass by the MIG torch that deposits the filler metal.

- 10) Please replace the paragraph at page 9, line 6, with the following:

The detailed structure of a heat exchanger will not be described hereinbelow as it is well known in the industry and ~~can also be seen in particular on the Internet site www.alpema.org or is~~ described in "*The Standards of the Brazed Aluminium Plate-Fin Heat Exchanger Manufacturers Association*", ALPIMA, Second Edition, 2000.

- 11) Please insert the following paragraph at page 11, line 32:

It will be understood that many additional changes in the details, materials, steps and arrangement of parts, which have been herein described in order to explain the nature of the invention, may be made by those skilled in the art within the principle and scope of the invention as expressed in the appended claims. Thus, the present invention is not intended to be limited to the specific embodiments in the examples given above.

- 12) Please replace the subtitle at page 12, line 1, with the following text:

~~CLAIMS~~ What is claimed is:

- 13) Please delete the 15th page in its entirety.